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Impact of Internet Banking on Customer Satisfaction and Loyalty: A Conceptual Model

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ABSTRACT

This is a research in progress paper discussing Internet banking issues both from the bank's point of view and from the customers' points of view. Based on literature it includes several factors that impact Internet banking. It includes several hypothesis derived from literature to be tested empirically. The research will be guided by the conceptual model presented as figure 2 in this paper highlighting the relationship between Internet banking and customer satisfaction and loyalty.

Keywords: Internet banking, customer satisfaction, customer loyalty

1. INTRODUCTION

Internet banking is one form of e-commerce that has gained a wider acceptance than others. In Australia all banks are now offering internet banking facilities to all its customers. As suggested by Chang [10] the evolution of information technology has significantly influenced the banking industry. Particularly, the advent of the Internet and the popularity of personal computers have created both an opportunity and a challenge for this industry. In only a decade Internet Banking has rapidly grown [2]. In 2001, the Market Intelligence Strategy Centre (MISC) reported that approximately 2.8 million people have used Internet Banking in Australia [50]. These figures increase rapidly with each new survey. A study from Taylor Nelson Sofre in 2002 revealed that 23% of Australians used Internet Banking and the Internet Banking adoption rate in Australia is greater than in the US and Britain [3]. In mid-2002, the MISC reported that 5 million Australians had used Internet Banking services [39]. Recent survey undertaken by the MISC shows that the number of Australians using Internet Bank had reached 7.7 million in September 2003, with an annual growth rate of 113% [33].

The rapid growth of Internet banking in recent years is a clear indication of consumer acceptance of this media. However, the impact of Internet Banking on customer satisfaction and loyalty in Australia is yet to be established as few studies have addressed this issue. In this paper we present a review of literature on internet banking and the factors that may impact internet banking and customer satisfaction and loyalty.

2. DEFINITION OF INTERNET BANKING

Internet Banking is defined as the usage of Internet and telecommunication networks to deliver banking services to customers [12, 14, 43]. Customers can inquire information and carry out most banking services such as account balance inquiry, inter-account transfers, and bill-payment via the Internet. There are different

perceptions of Internet Banking between the literature and practitioners. With reference to most Australian banks' websites, the term 'Internet banking' has been construed as the transactions relating to current and credit card accounts such as viewing balances, paying bills, and transferring funds. In contrast, in the literature, Internet banking includes the services relating to financing, insurance, investment, and new banking services [14, 43]. The latter will be referenced in this paper.

3. INTERNET BANKING TECHNOLOGY

According to Leong, Srikanthan & Hura [27] Internet banking is a web application based on client/server architecture in which Internet technology plays an important role. A basic architecture is illustrated in figure 1.

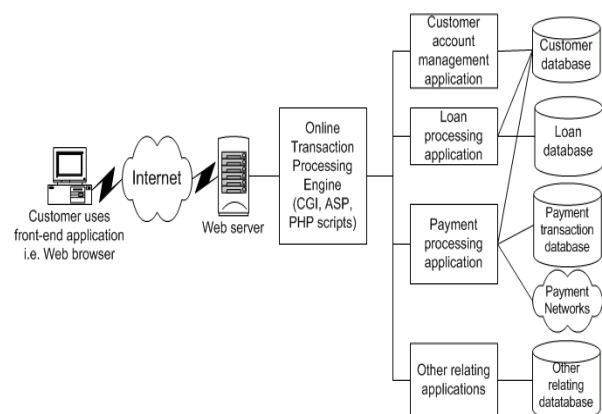


Figure 1: Internet Banking application architecture - adopted from Leong, Srikanthan & Hura (1998) and Turban et al. (2000)

Similar to all Internet transmission of information, with Internet banking security is an important concern for banks and customers [43]. All banks offering Internet Banking have taken special care to ensure security, privacy and confidentiality of information to all its customers. Basic security requirements to conduct business over the Internet are discussed below. *Authentication* involves the ability of an individual, organisation, or computer to prove its identity. Security systems accomplish authentication by verifying information that the user provides against what the system already knows about the user. *Authorisation* involves the control of access to particular information once identity has been verified. Authorisation is meant to limit the actions or operations that authenticated parties are able to perform in a networked environment. *Audits* include information on access of particular resources using particular privileges or performing certain security actions. It identifies the person or program that performed the actions. *Confidentiality* involves the secrecy of data and/or information, and the protection of such information from unauthorised access. For e-businesses confidentiality is of utmost importance in the protection of an organisation or company's financial data, product development information, organisation structures and various other types of information. Time related information such as a price list or confidential report can be crucial and need to be kept confidential until a certain time. Policies regarding the release of information must be included in confidentiality, as well as authorisation services. Confidentiality policy must ensure that information cannot be read, copied, modified, or disclosed without proper authorisation and that communication over networks cannot be intercepted. *Integrity* is the protection of data from modification either while in transit or in storage. E-commerce and e-business systems must have the capability of ensuring that data transmissions over networks arrive at their destinations in exactly the same form as they were sent. Integrity services must protect data against modifications, additions, deletions, and reordering parts of the data. Information can be erased or become inaccessible, resulting in loss of *availability*. This means that those who are authorized to get information did not get what they needed. Availability of information is an important attribute in service-oriented businesses that depend on information (e.g. airline schedules). When a user cannot get access to the network or specific services provided on the network, they experience a *denial of service*. *Nonrepudiation* involves protection against a party involved in a transaction or communication activity that later falsely denies that the transaction or activity occurred. Nonrepudiation services must be able to demonstrate to a third party proof of origin, delivery, submission and transport of the data in question [56].

Security protection includes physical security devices i.e. secure server rooms, unauthorised intrusion detector, organisation's security policies and related Internet security technologies. Authentication, digital

certificates, firewalls, Secure Socket Layer (SSL), Secure HTTP (S-HTTP), Secure Electronic Transaction (SET), Joint Electronic Payment Initiative (JEPI), and Open Financial Exchange (OFX) are important technologies supporting Internet Banking security [25]. SSL and S-HTTP are popular protocols for secure communications over the Internet at network level security and application level security respectively, using public key cryptography and symmetric key encryptions. On the other hand, SET is a standard/protocol for securing real-time credit card transactions over the Internet. This protocol enables E-Commerce applications to communicate between the customers, SET-compliant merchants and authorised third-party payment gateways.

JEPI and OFX are secure communication protocols. JEPI is known to standardise payment negotiations by assisting consumers and merchants in selecting an appropriate payment mechanism of different payment protocols for both parties. OFX is primarily designed for electronic data exchange between financial institutions and is a messaging protocol for online financial services such as Electronic Bill Presentments and Payments (EBPP) and investment services. OFX has been adopted by many large financial institutions [25]. In Australia, OFX has been implemented for BPAY, an EBPP system developed by Australian banks [9].

Internet Banking allows account aggregation. With account aggregation, customers can manage several banking accounts held at different banks via a unique access point. This means that customers just log on to the Internet Banking websites which support account aggregation enable customers to access their account held at other banks, including deposit account, credit cards and award programs [28]. To use account aggregation service, a customer has to give settings such as the URL, user name and password of each external account. Once customer logs on to an account aggregation website, this system automatically logs onto other banks' Internet Banking sites just as if a customer is logged on to them directly. With account aggregation, a customer is able to access all information from an account held at another bank. This provides customers with convenience and time saving. Although this has many advantages to the customers, security, level of information access and legal standards to protect the banks and customers has led to a slow adoption [1, 28].

In Australia, account aggregation was offered by WestPac, Commonwealth Bank, AMP and Macquarie Bank [57]. However, recently, Macquarie Bank has removed this feature due to the security concerns [47].

3. BENEFITS OF INTERNET BANKING

Internet Banking provides clear advantages to both the financial institutions and the customers. From the banks' perspective, Internet Banking has very low cost transactions, compared to human teller banking since it

reduces the following expenses [24, 52]: (1) Banks can reduce customer service staff as customers use more self-service functions; (2) There is less cheque processing costs due to an increase in electronic payments.; (3) Costs of paper and mail distribution are reduced as bank statements and disclosures are presented online; (4) There is less data entry as applications are completed and processed online by customers. On the other hand, according to KPMG [24], bank's revenue increases from Internet Banking due to: (1) Increased account sales; (2) Wider market reach; (3) New fee-based income; (4) New market opportunities; (5) Improved customer satisfaction. For consumers, Internet banking provides convenience, lower service charges, more accessible information about bank accounts, and an attractive option for busy people since it saves time to go to the bank branches and gives 24 hours access [26]. All the benefits of B2C e-commerce such as 24*7 bank service, convenience, access from anywhere, one stop shop and easy access to information [57, 58 59] also apply to internet banking.

6. PRODUCTS AND SERVICES OFFERED ONLINE

Internet Banking provides customers with many services and several facilities to carry out online banking transactions. The basic services include opening a bank account, printing bank statement, transferring funds between bank accounts, and paying bills. Other Internet Banking services comprise of future, dated and recurring bill payments and funds transfers, loan application, e-trade, fund management, customisation of account names, ability to export banking transactions to popular financial management software packages such as Microsoft Money or Intuit Quicken [1]. In addition, account aggregation services allow customers to manage multiple accounts from different financial institutions with a single login. There are many online financial services but they can be divided into the following categories [18]: (1) Current account; (2) Insurance-based; (3) Credit-based; (4) Investment-based services.

Most Australian banks provide interactive, extensive and sophisticated Internet Banking services [6]. However, it appears that no empirical study has been conducted to examine whether the Internet banking services in Australia are satisfactory to customers.

7. INTERNET BANKING AND CUSTOMER BEHAVIOUR IN THE LITERATURE

In the literature, scholars have focused on examining the characteristics of Internet Banking and the factors

In figure 1, three groups of variables that are likely to have an impact on customer satisfaction are grouped together. These are Internet Banking system quality, customer characteristics, and customer's system constraints. However, for the purpose of assisting practitioners in building a more effective Internet

influencing Internet Banking customer behaviour/attitude. The recent studies have examined the determinants such as demographics [7, 23, 32, 49, 15, 23, 32, 49, consumer characteristics [15, 23, 32, 35, 44, 34, 37, 43, 30, 45, 51], consumer perceptions [15, 44], technology attributes [30, 45, 51], and social context [15, 44] in association with the affects of these variables to Internet Banking customer behaviour/attitude.

Unfortunately, most studies concentrated on investigating the impact of the above determinants on Internet Banking adoption. Few studies [34, 40, 48, 54] have examined customer satisfaction and loyalty in relation to Internet Banking. Though Internet Banking in Australia began in 1997 [43], literature and research have only concentrated on Australian Internet Banking adoption issues, focusing on either retail customer [43] or small and medium business [52]. No empirical study has been conducted to understand the impact of Internet Banking on customer satisfaction and loyalty in Australia.

8. A CONCEPTUAL MODEL AND HYPOTHESES

For the purpose of understanding the factors influencing Internet Banking customer satisfaction and loyalty, this paper proposes a conceptual model (figure 1). This conceptual model is developed based on several previous studies relating to Internet Banking and human-computer interactions [55].

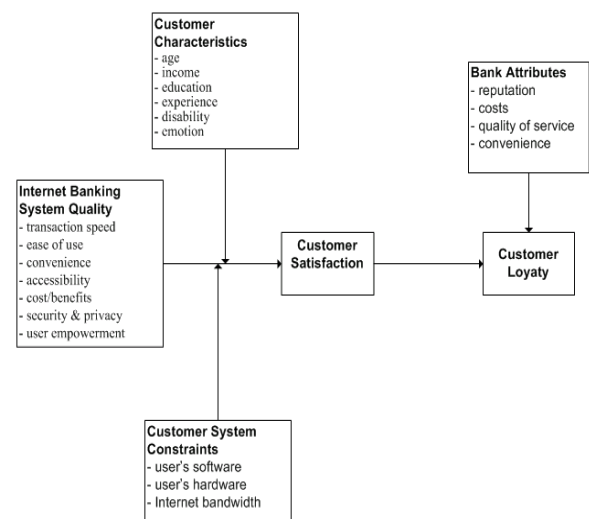


Figure 2: Conceptual model of the relationships between Internet banking system and customer satisfaction and loyalty

banking application and the impact of the technological characteristics of Internet Banking are specially considered.

Internet Banking system quality: this consists of several independent variables such as transaction speed, ease of use, convenience, accessibility, cost/benefit,

user empowerment, security and privacy [30, 34, 43, 46, 54].

Customer characteristics: Characteristics of Internet banking customers identified from literature are younger, high income earners [17, 41, 46, 17, 41], and the better-educated [17, 41]. To date no significant relationship between e-Banking and gender or occupation has been identified [17, 41]. Zhang & Li [51] suggest that health condition (disability, emotion i.e. stress) also impact customer perceived usage of technologies. Based on the above, age, income, education, experience, disability and emotion are included as customer characteristics in the conceptual model.

Customers' system constraints: System constraints (hardware, software and Internet bandwidth) are likely to affect the accessibility of Internet banking by customers [51]. Customers with these constraints will be deprived of Internet banking opportunities therefore these technology issues are considered as contingent variables.

Customer satisfaction is defined based on the *confirmation/disconfirmation* theory that states "satisfaction results from a process of comparison where consumers judge product satisfaction against their expectations about product performance" [17].

Customer loyalty, in the behavioural approach, has often been construed as repeat purchase frequency [22], probability of future purchase [36] and intentions of switching brand [19]. Cunningham [11] assesses customer loyalty based on the proportion of money that a customer spends with purchases from a single supplier. In the attitudinal approach, a loyal customer must have strong "attitudinal commitment" to a brand [16, 20].

Bank attributes: Customer loyalty/retention may result from a bank's reputation (brand name, well-known, popularity), costs (interest rate, fees), convenience (i.e. location and distance) and quality of banking service [13]. Therefore, these factors have been taken into account to identify the relationship between customer satisfaction and customer loyalty.

From the literature review and the conceptual model, the following hypotheses are thus stated:

H1. Better Internet banking system quality such as the transaction speed, ease of use, convenience, accessibility, cost/benefit, user empowerment, security, and privacy is likely to have a positive impact on customer satisfaction [30, 34, 46, 54].

H2. The difficulties of using technology due to customer characteristics such as age, education, income, disability and emotion are likely to moderate the relationship between Internet Banking system quality and customer satisfaction [17, 41, 46, and 55].

H3. The limitations of accessibility to technology due to customer system constraints such as availability of software, user's system processing speed and Internet bandwidth are likely to moderate the relationship between Internet banking quality and customer satisfaction [55].

H4. Customer satisfaction resulting from the usage of Internet banking is likely to have a positive impact on customer loyalty [13, 34].

6. CONCLUSION

This is a research in progress paper, providing an overview of Internet banking, addressing a number of issues identified from literature. Literature review discussed above address Internet banking as well as online banking customer issues. The hypothesis presented above will be empirically tested to identify customer satisfaction and loyalty in internet banking. Research will be guided by the conceptual model presented above as figure 2.

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